

The Far-Reaching Applications of the Collaborative Pesticide Method Development Projects of the U.S. Environmental Protection Agency

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Traditional methods of analysis for pesticides in food have provided residue data down to 10 parts per billion (ppb). Improved analytical methods that could be used to detect organophosphate and carbamate pesticide residues in food down to 1 ppb were needed by the EPA. Two new analytical methods for organophosphate and carbamate pesticides were developed by the EPA in collaboration with the FDA to provide low-level pesticide residue data to EPA scientists preparing dietary risk assessments.

THE ORGANOPHOSPHATE ANALYTICAL METHOD DEVELOPMENT PROJECT:

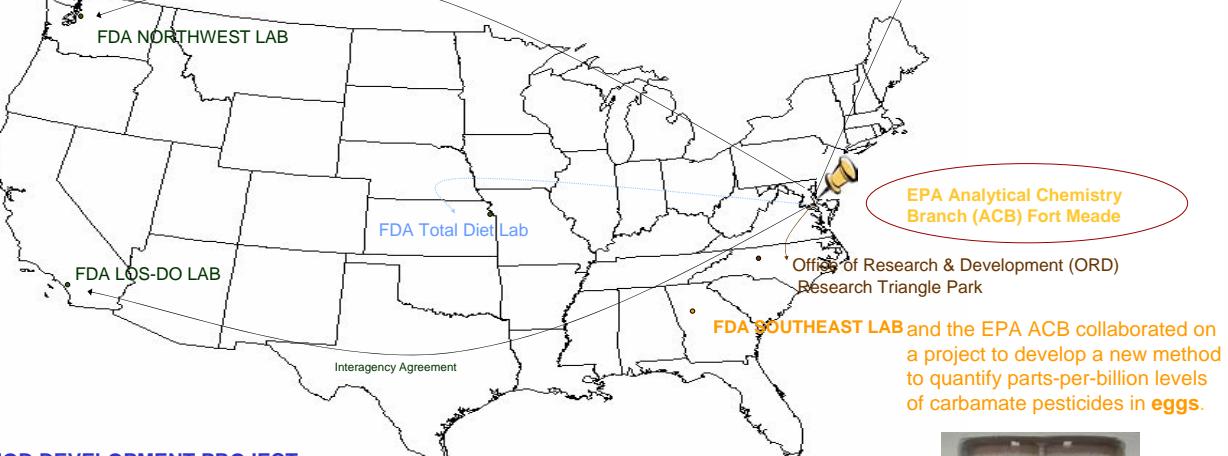
Using new technology and an improved sample cleanup, 57 organophosphate (OP) pesticides can be quantified down to 1 ppb in fruits and vegetables.



Interagency Agreement



Through an Interagency agreement (IAG), the FDA Office of Regulatory Affairs (ORA) Regional labs in Seattle and Los Angeles used the new EPA OP multi residue method to analyze **1000** samples and provided valuable pesticide residue data back to the EPA.

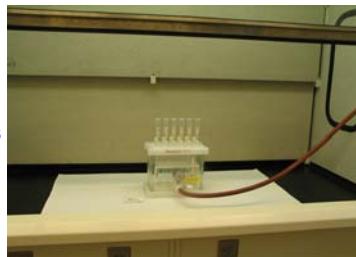


THE CARBAMATE METHOD DEVELOPMENT PROJECT:

The carbamate method development project involved the EPA and the FDA Southeast Regional Lab and resulted in a new analytical method to quantify 24 carbamates in **fruits and vegetables** down to 1 part per billion. The new method replaced the traditional charcoal/celite sample cleanup. The FDA Total Diet Lab has recently used the new method.



VS



The traditional carbamate method uses a charcoal/celite sample cleanup which requires a lot of glassware, solvents, and time.

The new sample cleanup uses small, disposable columns, disposable glass tubes and much less solvent. The procedure is quicker and no water is needed to wash glassware.

Can you see the difference?



ORD DOSING SOLUTION PROJECT:

In support of ORD and Good Laboratory Practices (GLP) requirements, the ACB laboratory analyzed 200 Dosing Solutions of water and corn oil used in ORD toxicity studies.

OXAMYL WATER SOLUTIONS prepared by ORD (mg/mL)	Results of analysis of water solutions by ACB (mg/mL)	METHOMYL WATER SOLUTIONS prepared by ORD (mg/mL)	Results of analysis of water solutions by ACB (mg/mL)
1.5	1.46	2.5	2.31
1.0	0.95	1.25	1.18
0.5	0.46	0.6	0.56
0.1	0.087	0.25	0.23
0.066	0.05	0.1	0.09
1.5	1.42	2.5	2.31
1.0	0.95	1.25	1.18
0.5	0.45	0.6	0.58
0.1	0.084	0.25	0.24
0.066	0.05	0.1	0.1



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